

WITHIN OUR BORDERS

VOL. 1

EDMONTON, SEPTEMBER 15, 1948

No. 4

Members of Alberta's Legislature

Membership of Alberta's 11th legislature was decided in a general provincial election August 17. The results of the election were as follows:

Standing by parties in legislature: Social Credit, 51; Liberal, 2; Co-operative Commonwealth Federation, 2; Independent, 1; Independent Social Credit, 1.

Following is a list of the cabinet ministers:

Name	Portfolio	Constituency
Manning, Hon. E. C.	Premier, Provincial Treasurer	Edmonton.
Cross, Hon. Dr. W. W.	Minister of Health & Public Welfare	Hand Hills.
MacMillan, Hon. D. B.	Minister of Public Works, Railways and Telephones	Lacombe.
Maynard, Hon. Lucien	Attorney General	St. Albert.
Hooke, Hon. N. E.	Minister of Lands and Mines	Cardston.
Tanner, Hon. A. J.	Minister of Economic Affairs	Rocky Mtn. House.
Gerhart, Hon. C. E.	Minister of Municipal Affairs and Provincial Secretary	Coronation.
Casey, Hon. Ivan	Minister of Education	Okotoks-High River.
Robinson, Hon. Dr. J. L.	Minister of Industries and Labour	Medicine Hat.
Ure, Hon. D. A.	Minister of Agriculture	Red Deer.

Here are the other members of the legislature listed alphabetically:

Name	Constituency	Pol.	Affil.	Address
Aalborg, A.	Alexandra		S.C.	Marwayne.
Adams, C.	Edmonton		S.C.	9914 - 102 St., Edmonton.
Ansley, R. E.	Leduc		S.C.	11248 - 127 St., Edmonton.
Baker, F. M.	Clover Bar		S.C.	10172 - 117 St., Edmonton.
Beaudry, J. W.	St. Paul		S.C.	St. Paul.
Bell, G. E.	Gleichen		S.C.	Gleichen.
Bourcier, A. V.	Lac Ste. Anne		S.C.	11222 - 80 St., Edmonton.
Cain, W. E.	Bow-Valley Empress		S.C.	Brooks.
Chaba, Peter	Redwater		S.C.	Egremont.
Colborne, F. C.	Calgary		S.C.	1507 - 25 Ave. W., Calgary.
Cook, N. E.	Olds		S.C.	Olds.
Cornish, W. R.	Vermilion		S.C.	Mannville.
Dawson, Hon. Peter	Little Bow		S.C.	Champion.
DeBolt, H. E.	Spirit River		S.C.	Spirit River.
Fee, A. E.	Sedgewick		S.C.	Killam.
Gilliland, Wm. F.	Peace River		S.C.	Berwyn.
Hammell, H. G.	Didsbury		S.C.	Carstairs.
Hardy, Earl	Bruce		S.C.	Holden.
Hartley, James	Macleod		S.C.	Macleod.
Halmrast, L. C.	Warner		S.C.	Lucky Strike.
Heard, Dr. Lou	Edmonton		S.C.	11122 - 62 St., Edmonton.
Jorgenson, R. D.	Pembina		S.C.	Dapp.
Kovach, Wm.	Pincher Creek-Crownsnest		S.C.	Hillcrest.
Landeryou, J. C.	Lethbridge		S.C.	Lethbridge.
Lee, Gordon	Athabaska		S.C.	Boyle.
Lee, R. L.	Taber		S.C.	Barnwell.
Liesemer, A. J. E.	Calgary		C.C.F.	102 Crescent Rd., Calgary.
Lobay, Harry	Beaver River		S.C.	Lac La Biche.
Macdonald, H. B.	Calgary		Ind.	304 Grain Exchange Bldg.,
MacDonald, H. J.	Calgary		Lib.	55 Canada Life Bldg.,
Mackie, Wm. S.	Stettler		S.C.	Stettler. [Calgary.]
Masson, Wm.	Wainwright		S.C.	Irma.
McLaughlin, Ira	Grande Prairie		S.C.	Bezanson.
McPherson, Dr. J. L.	Bruce		S.C.	Rvley.
Moore, Ora B.	Ponoka		S.C.	Rimbey.
Ponich, Michael	Vegreville		S.C.	Two Hills.
Prowse, H.	Edmonton		Lib.	11019 - 126 St., Edmonton.
Roper, Elmer E.	Edmonton		C.C.F.	10010 - 102 St., Edmonton.
Sayers, C. I.	Camrose		S.C.	Meeting Creek.
Taylor, G. E.	Drumheller		S.C.	Drumheller.
Tomyn, Wm.	Willingdon		S.C.	5517 Jasper Ave., Ed.
Underdahl, James	Cypress		S.C.	Manyberries.
Wilkinson, Mrs. R.	Calgary		S.C.	1232 - 17 Ave. N.W.,
Willmore, N. A.	Edson		S.C.	Edson. [Calgary.]
Wingblade, Rev. J.	Wetaskiwin		S.C.	Wetaskiwin.
Wood, Mrs. C. R.	Stony Plain		S.C.	Stony Plain.
Wood, Dr. J. B. T.	Grouard		S.C.	High Prairie.
Wray, Arthur	Banff-Cochrane		Ind. S.C.	Banff.

The above has been prepared in concise, tabular form for the purpose of clipping for future reference. It is hoped the list will be of particular help to students, libraries, etc. ***

Engineer Describes

Life and Death of Wild Well

Atlantic No. 3's Furious Antics Failed To Stop Plans To Protect Rich Alberta Oilfield

(In the belief many Albertans would be keenly interested in knowing just exactly what happened to cause the birth of the province's now-famous Atlantic Number 3 wild well and how engineering skill brought about its death, Within Our Borders presents this article written by an engineer. The writer has carefully avoided technical language to make the story of the birth and death of a wild well as interesting, as accurate and as readable as possible.)

In mid-January, 1948, an oil well known as Atlantic No. 3 was spudded in the central-eastern section of the Leduc oilfield. This well was later to go wild and for six months and a day defied the best efforts of man to bring it under control. During this time about 1¼ million barrels of oil, and millions of cubic feet of gas were thrown out of the ground in uncontrolled flow.

The well was drilled by normal procedures, including the setting and cementing of 300 feet of surface casing. The surface casing was to retain the unconsolidated earth and surface water above the level where solid rock was reached. The first indication of trouble at Atlantic No. 3 came in mid-February when circulation of drilling mud was lost at 5,267 feet depth, just at the top of the porous D3 limestone zone. This mud supplies the weight necessary in a well to "hold down" the pressure of gas and oil in the formation. Many efforts were made during the next three weeks to replace the mud and to bring the well under proper control with water, mud, cement and chemical coagulating materials, but all to no avail.

March 8 the mud level fell below the critical height and oil and gas rushed to the surface and blew up through the derrick and over the snow covered ground.

A wild well was born.

After 38 hours, the surface casing was finally valved off, and the well was temporarily beaten into submission. Toward the end of March, however, the high formation pressure caused the gas and oil to burst out through the rock below the surface casing and break through to the surface. This flow was to build up over the ensuing months to a peak of some 15,000 barrels of oil and a tremendous flow of gas per day.

At this time, action was taken by the Petroleum and Natural Gas Conservation Board, who enlisted the aid of M. M. Kinley, oil well fire and blowout expert from Texas.

When Mr. Kinley arrived in the first part of April, he found the drill pipe had become plugged with shale and also several tools which had been employed in previous attempts to perforate the pipe for injection of mud. Under his direction a very successful "fishing" program was then conducted to clean the drill pipe out in order to facilitate further injections as well as possibly bridging the hole by a charge of explosives. During the first part of May a great variety of materials were injected into the formation in an effort to plug the porous zone and quench the flow. Among the materials used were feathers, sawdust, cottonseed hulls and redwood shavings mixed with mud and cement. However, these materials disappeared in vast quantities down the hole without effect.

SETBACK ENCOUNTERED

About this time a setback in the work was encountered. The drill pipe parted some 900 feet from the surface which made further injections of material to the bottom of the hole impossible.

Meanwhile the uncontrolled flow of oil and gas through the surface craters had been increasing and on May 14 the entire field (with the exception of Atlantic No. 3), was shut in by Conservation Board order. This action was taken to make available entire pipeline and other transportation facilities, for the removal of Atlantic oil. Dikes and pipelines were installed for the continuous removal of the oil as it appeared at the surface. The Atlantic oil was drained from the crater by a network of ditches to earthen pits from which it was pumped to the pipeline. As a measure to reduce the flow through the craters, Mr. Kinley recommended that a maximum amount of oil and gas be taken through flow lines connected to the well head.

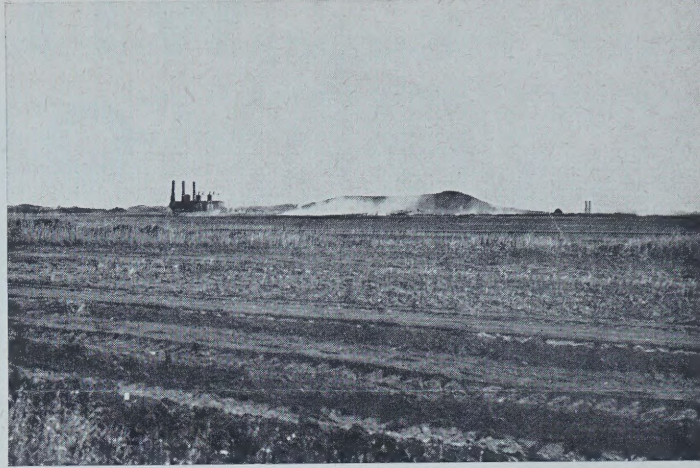
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In This Issue

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- Alberta's 11th Legislature . . .
- Radio Station CKUA . . .
- Alberta Gains Attention . . .
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- Police Golf Trophy . . .
- Rat Warning Display . . .



Hands in pockets, hat jammed determinedly on his head, V. J. "Tip" Moroney, Imperial Oil Ltd expert in charge of operations to flood the wild well, turns his back on fiery Atlantic No. 3 as he discusses his plan to ring the death knell for the outlaw well with Hon. N. E. Tanner, minister of lands and mines; I. N. McKinnon, chairman of the Alberta Petroleum and Natural Gas Conserva-



tion Board; and John Harvie, deputy minister. The photo on the right speaks for itself as to just how successful Mr. Moroney's plan was when put into action a few hours later. Only a thin steam vapor and a huge mound of rubble thrown up by the well mark its grave.

LIFE AND DEATH

(Continued from Page 1)

As well as closing in the field on May 14, the Conservation Board also took over the Atlantic No. 3 well and the problem of "killing" it. They obtained the services of Mr. V. J. "Tip" Moroney, Chief of Operations for Imperial Oil Limited, Western Producing Department, to take charge of the operation. The company agreed to release Mr. Moroney so that his services would be available to the Board until such time as the well was brought under control.

FIRE HAZARD INCREASES

Toward the end of May it became apparent that the well could not be "killed" by injecting materials down the Atlantic No. 3 hole itself. Moreover, the fire hazard had increased to such an extent that further work at Atlantic No. 3 derrick was considered inadvisable. For these reasons a new program was initiated under the direction of Mr. Moroney. This program was to involve the injection of large amounts of water into the formation, but through other wells.

The plan involved two steps.

The first was to try injection of water through Imperial's recently completed No. 48 well, a quarter of a mile west of Atlantic No. 3 and the second, to drill two directional wells sloping from the surface to intersect the Atlantic No. 3 hole at its bottom. Both of these steps were under way by the end of May. For three weeks water was pumped from the North Saskatchewan River into the Imperial No. 48 well until a total of 691,000 barrels had been injected. Even the experts knew that this was a "long shot" and that the chances of the necessary quantity of water migrating the quarter mile distance to the Atlantic well were small. All agreed, however, that this was worth a try. There was apparently no effect on the wild flow so this program was abandoned in the middle of June. All hopes were pinned on the successful completion of one or both of the two relief wells.

CONTINUE PIPE REMOVAL

Meanwhile the removal of oil from the pits had continued and after a careful examination of the transportation facilities, the Conservation Board on June 2 opened the field to 80% of its normal allowable production. This arrangement continued until September 10. During the "closed in" period, and for the complete life of the wild well, the Conservation Board experienced the fullest co-operation from the oil industry

as a whole. The oil producers scheduled their production to fit in with the transportation facilities. The oil refineries agreed to receive their oil from one pool which included the "weathered" Atlantic crude which was of a slightly lower quality due to its exposure. All companies and individuals willingly contributed their time and equipment to meet the emergency. A significant proof of this fact was the very small loss of oil. Of the 1½ million barrels of oil produced, almost one million barrels were shipped to western refineries and slightly under one quarter million barrels were returned to the formation through other wells.

DRILL ON ANGLE

The two relief wells, spudded about 700 feet from the Atlantic derrick, one west and one south, drilled on down toward the Devonian limestone horizon. They encountered a host of difficulties en route, since they were drilling on an angle and had actually to "bend" and steer the hole the 700 feet distance to the bottom of the Atlantic hole. The west relief well was completed in the hard impervious horizon of green shale just above the D3 zone in the last week in August. Preparations were then made to try to "break through" to the Atlantic hole. After exerting water pressures as high as 3,000 pounds per square inch at the surface for several days, there was no apparent break.

On the afternoon of September 4 the activity around the well increased tremendously as if in a last effort to defeat man's efforts. Great clouds of mud and shale were thrown into the air, and the derrick was shaken down. The derrick, the mud pumps and other drilling equipment were consumed into the crater. In the face of this violence the men in charge decided to drill the relief well deeper to the D3 zone and make the connection with the Atlantic well in the known porous zone.

This step was completed early in the morning of September 6 and the final water flooding program was started immediately. But Atlantic No. 3 had one last hurdle to place in the path of success. In the late afternoon, the well suddenly burst into flame. The exact cause still is unknown but may have resulted from a spark by impact of two pieces of rock or a piece of rock with some metal part of the drilling rig. The immediate area of the well was soon enveloped in a sea of fire as the oil soaked fields and diked pools were ignited. But through "Tip" Moroney's

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Alberta Winning Wide Attention Publications of Large Distribution Feature Sections on Province

Alberta has a prominent place in two recent major publications, the Canadian Geographical Society publication and "Canada Today," a 100-page booklet designed for wide distribution by the Bank of Montreal.

In both magazine and booklet, Alberta gained prominence through picture and stories. Albertans generally can take pride that in a single month their province attracted such eager "outside" attention.

Here is what the section of "Canada Today" devoted to Alberta has to say:

"ALBERTA: This Province, covering 255,285 square miles, lies between Saskatchewan and the Rocky Mountains. Like Saskatchewan, the southern part of the Province includes the dry, treeless prairie belt, changing to the north into a zone of poplar trees interspersed with open prairie. This gives way to mixed forests covering the most northerly parts. Except for an area of rocky land in the northeast corner, and the fringe of mountainous country on its western border, practically the whole of the Province is overlain by arable soil of great depth.

"Alberta has two special topographical features: (1) The great valley of the Peace River, which has already resulted in the extension of agricultural development farther north than in any other part of Canada; and (2) The wonderful grazing lands in the foothills district which, rising sharply in the west, commence the ascent that continues to the majestic peaks of the Rocky Mountains. The southern half of the Province, rising toward the west, lies at a general elevation of from 2,000 to 4,000 feet; but, in the northern half, the slope descends until, at Lake Athabasca, in the northeast corner, the elevation is well under 1,000 feet.

"Alberta has the most extensive coal resources and leads all provinces in production. It has also become the leading producer of petroleum and natural gas.

"Production of petroleum in 1947 approximated 20,000 barrels a day, and probable reserves amount to more than 500 million barrels. Lumbering is important in the more mountainous western parts and in the north, but large-scale ranching is still carried on in the less populous sections. The production of sugar beets is becoming increasingly important in the southern part of the Province.

"The climate in Alberta is a partic-

ularly pleasant one; in summer it is cooler than in most central parts of the country, while the winter is tempered by warm, dry winds, blowing over the mountains from the balmy Pacific Coast regions, and endowed by the red man with the expressive name "Chinook".

"The coal and oil resources have provided the basis of an industrial development, and the city of Edmonton has become the gateway to a vast and rich north country."

COMPLETE ARTICLE

The article in the publication of the Canadian Geographical Society was written by Dr. Fred McNally, chancellor of the University of Alberta and former deputy minister of education. The article is the most complete on this Province published in many years. It deals with the Province's chief physical features, climate, historical background, settlement, agriculture, transportation, natural resources, industrial development, cities and towns, education, the people and the Province's future.

Of general interest are Dr. McNally's opening remarks on the Province:

Alberta is the most westerly of the "Prairie Provinces". The designation "prairie", however, may be properly applied to only that section of the Province in eastern Alberta lying south of Lac La Biche and east of Stettler. The park land or central region extends roughly from the Red Deer River northwards to the latitude about midway between Edmonton and Athabasca. The forested region predominates and comprises the eastern slopes of the Rocky Mountain foothills belt and that part of the Province north and west of the Athabasca River and north of Lac La Biche.

The Province is rectangular in shape except where the Rocky Mountains (Continued on Page 3)

Officials Watch Rat Migration

To inform the public of the problem presented by rat migration across Canada, a unique display currently is being used by the Division of Entomology, Department of Public Health. Graphically portraying the advance of rat hordes over the Dominion the display first was used during the Edmonton Exhibition and will be shown throughout the Province by courtesy of the T. Eaton Co. (Western) Ltd. The unit consists of two main parts, the visible section and the concealed control box upon which it rests. Background of the former is a map showing Western Canada and a portion of Ontario. In front of this are six overlapping sheets of lucite. The whole is enclosed by a large sheet of the same material. The six sheets are so cut that their edges outline the advance of rats into Canada from the central and eastern United States. Each edge is bevelled and polished to a high degree with jeweler's rouge. Beneath the sheets, in a cabinet-like case, are located some 80 light bulbs arranged so that the base of each lucite sheet is subjected to complete coverage by light rays. Lights are controlled by an automatic switch which allows the background to be illuminated for approximately twelve seconds and each of the sheets for eight seconds. Principle of the illumination is that light from the bulbs travels up the surface of the lucite sheet above until it strikes the polished bevel edge. Here it is reflected and becomes visible as a neon-sized band of light. Engraved on the sheets from right to left are the dates 1910, 1920, 1930,

1940, 1945, and, on the last sheet, 1950 plus a rat and large question mark. In operation the display depicts the spread of rats in Canada over these years and lastly asks whether Alberta will be host to the pests by 1950. A complete cycle takes place every sixty seconds. Utilizing a method of illumination which still is comparatively rarely used the display has drawn considerable attention. Correspondence already received from persons who have seen the exhibit amply demonstrates its effectiveness. * * *

LIFE AND DEATH

(Continued from Page 2)
foresight in locating the relief wells far enough away, work continued uninterrupted in the face of the fire.

WATER BREAKS THROUGH

By late in the evening of September 8 after several injections of acid, the water had broken through from the relief well to the wild flaming well. The flame died slowly down, losing its black oil smoke and changing to a yellowish gas flare. Huge diesel pumps forced increasing quantities of water into the formation and finally at 4.45 a.m. on September 9, the flame silently expired. Water from the relief well had risen up the bore of Atlantic No. 3 to shut off the flow of oil and gas. The well had been successfully killed. The wild well was dead, thanks to the careful planning and the strenuous efforts of "Tip" Moroney, his associate "Charlie" Visser, and dozens of oil field workers. One final chapter in the history of Atlantic No. 3—"the burial"—will be the permanent sealing of the hole by plugging it with cement. This work, to be done through the south relief well, is in progress. * * *

Government Presents Police Golf Trophy



Hon. A. J. Hooke congratulates Corporal McGlynn . . .

A little-known phase of provincial government activity was demonstrated in the clubhouse of Edmonton's Highlands Golf Club, September 10, when Hon. A. J. Hooke, minister of economic affairs, presided as guest of honor and presented prizes at a banquet following the annual police golf tournament. The tourney drew entries from all parts of the Province. Several law-enforcement bodies were represented including R.C.M.P., city, town and railway police. Winner of the championship final was Corporal Gordon McGlynn, R.C.M.P., who nosed out brother Mountie Joe Simoneau 2 and 1. It was the first time McGlynn had won a golf tourney and his win gave him the championship previously held by Chief Reg Jennings of the Edmonton City Police. Team play trophy went to a foursome from R.C.M.P. "K" Division headquarters in Edmonton made up of H. S. Allen, 98-92; Joe Simoneau, 83-82; Jeff Mortimer, 89-91 and Ralph Jones, 88-84. At the banquet which followed the two-day event, Mr. Hooke, in presenting awards, affirmed the government's interest in cultural activities and the promotion of relaxation, fellowship and good sportsmanship, as exemplified during the tourney in which the will to win was secondary to the sportsmanship displayed. In confirmation, Mr. Hooke presented the Provincial Government trophy as the team play award. The Minister complimented the winners and asserted the government was pleased to provide it for annual competition as an incentive to further encouragement of the elements of competition and good fellowship. * * *

Report Shows Education Expenditures Increase Provincial Government Now Spending Three Times What Was Spent 12 Years Ago

Since 1935 there has been a steady increase in the amount spent on education by the provincial government. This year it will amount to over three times the expenditure in 1935, an increase of over \$7,000,000. More money is being spent each year on teacher training, for the University and for the Institute of Technology and Art. Each year since 1935 there has been a steady increase in the grants to elementary and high schools and the share of current revenue devoted to education has gone up. A greater share of pupils are getting high school education each year. In 1935 only 10.87% of pupils were enrolled in high school, in 1945 this had increased to 12.24%. At the University of Alberta the increase has been amazing—1,607 in 1934-35; 1,931 in 1939-40 and 4,941 in 1947-48. **COURSES OFFERED** The number of courses offered in the high schools has increased—typing, shorthand, home economics, agriculture and music are now available to many more of our students. Generous grants are given for schools where these are taught. Numerous other services including libraries, health services and dormitory accommodation have all played an important part in making our educational system the finest possible. **TEACHER SUPPLY** In order to encourage high school

graduates to take up teaching, the Department of Education has again offered 200 scholarships of \$200 each to those enrolling in teacher training courses. Tuition fees are also paid for those taking the one year course. One hundred eighty-seven students entered under this plan in 1947 and it is expected that the full 200 will be assisted this year. The cost will amount to \$40,000. The general improvement in wages, pensions and teaching conditions has definitely made teaching a more attractive life work. The provincial government intends to pursue policies which will continue to improve education in all its phases in Alberta. **TEACHER SALARIES DOUBLED**

	1935	1947
Average Salary to		
Rural Teacher	\$722	\$1,460

ALBERTA WINNING

(Continued from Page 2)
tains form the boundary in the southwestern part. Here the dividing line between Alberta and British Columbia follows the irregular crest of the range from the International Boundary northwestward until it reaches the 120th meridian, which is then followed northward to the 60th parallel of latitude. This parallel separates Alberta from the Northwest Territories. Alberta is bordered on the east by the 110th meridian which separates it from the Province of Saskatchewan, and on the south by the United States of America. Its width varies from 180 miles at the International Boundary to about 400 miles at its widest part, which is slightly north of Edmonton. Its length from north to south is 760 miles and its area is 255,285 square miles.

CHIEF PHYSICAL FEATURES

The southeastern part of the Province consists of rolling and level prairie land, treeless except along the water courses. Here and there the surface is cut by deep valleys through which rapid rivers have poured for ages on their way from the mountains to the sea and in the process have eroded valleys sometimes hundreds of feet deep and a mile or more in

width. These great valleys cut out of the level prairie are characteristic of southeastern Alberta. In the western part of the Province are the foothills, mostly rounded and grass-covered except on the higher ridges where the prevailing winds have whipped away the soil leaving bare the underlying rock. In the foothills, forest growth makes its appearance and increases into the higher altitudes. Beyond the foothills rise the Rocky Mountains, forested on their lower levels, their upper parts bare, rock-ribbed, or covered with ice and snow.

In the park lands the natural grass is longer and coarser. Dotted here and there are fluffs of native poplar and willow, and gradually the grass gives way to forest cover. In the forested areas deposits of humus due to heavier vegetation result in a rich black soil instead of the chocolate-colored loam of the prairies.

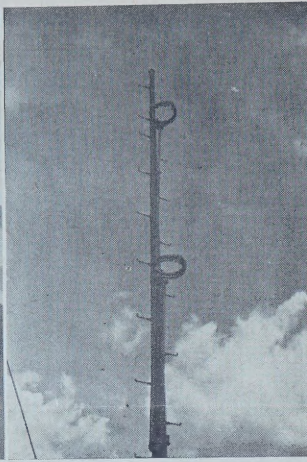
In that Alberta commands the eastern watershed of the Rocky Mountains, she holds the strategic position with reference to the water supply of the vast territory lying between Ontario and British Columbia. In it are the sources of most of the great rivers traversing the Canadian interior plains and emptying into the Arctic Ocean or Hudson Bay. * * *

A FOURFOLD INCREASE

	1934-35	1939-40	1944-45	Estimated for 1948-49
Total expenditure for Education.....	\$2,269,286.41	2,850,214.09	\$4,072,402.65	\$9,829,000.00
Grants to Schools	1,391,020.00	1,763,768.00	2,717,700.00	5,700,000.00
Grant per pupil	8.28	10.76	17.81	36.65
Total grant to University of Alberta.....	386,250.00	425,000.00	602,500.00	1,170,900.00
				(plus capital for new buildings amounting to \$1,369,800.00)
Institute of Technology and Art.....	64,438.41	79,238.23	63,796.12	197,613.00
		(not including maintenance)		



A program originates . . .



Circular FM antenna . . .



Central Control Room . . .

Government Station

CKUA Offers Varied Services

Becomes Only Frequency Modulation Station From Winnipeg to Vancouver

The Alberta Government Telephones station CKUA can lay claim to distinction in many fields.

Located on the third floor of the Provincial Building in downtown Edmonton, it possesses an efficient arrangement of studios and is the only FM broadcasting station between Winnipeg and Vancouver. Its equipment, the most modern and advanced available, includes the only set of professional recording machines west of Toronto. It is unique in all Canada in that it does not broadcast commercials, singing or otherwise.

The station started broadcasting Nov. 4, 1927, under the direction of the University of Alberta. One of the oldest established stations in Western Canada, it was taken over by the Alberta Government Telephones in April of 1944, at which time it was moved to the Provincial Building. It has been operating in its present spacious studios since June.

NEW STUDIOS

The new studios comprise 14,500 square feet of floor space and are designed for maximum efficiency and workability. Facilities allow a program to be fed to a Canadian Broadcasting Corporation network while another program is being broadcast locally. Artists can be recording their program in another studio, while a fourth program can be rehearsing in still another. All this goes on without crowding or interference. Actual working studios are laid out in a U-shape surrounding a large main studio, while engineering and administrative offices are located along both sides of the U.

CKUA enjoys an enviable reputation among lovers of both popular and classical music. The accent is placed on what is called better music, but swing arrangements are not ignored. For 17 hours of broadcasting daily, the programs provide variety, entertainment and education to an ever-widening listening audience.

In the field of education by air, CKUA has assumed an important role. In co-operation with the Correspondence School Branch of the Department of Education, lessons in elementary and high school subjects are broadcast to all those without the usual school and teacher set-up.

IMPORTANT SERVICE

Starting four years ago when the wartime teacher shortage closed hundreds of schools in the Province, this outstanding service has developed until now it is assisting many thousands throughout Alberta to continue their education.

During the school year an average of two and one-half hours per day are devoted to this type of program, under the direction of specialists in the subjects concerned. The lessons

are welcomed not only by out-students, but also by the teachers in many schools, who find that their form of presentation is a great help to the class. These go out over Alberta's Educational Network, which originates in CKUA and hooks up stations in Calgary, Lethbridge, Medicine Hat and Grande Prairie. It is said that the development of this type of service in Alberta is second only to that from the city of Chicago.

FREQUENCY MODULATION

Station CKUA has been broadcasting by frequency modulation since the opening of their new studios in June. Originally intended as an experiment to determine the possibilities of this revolutionary kind of broadcasting, equipment having a 12-mile range was installed. Tests show the range was under-estimated. Clear contact has been maintained as far away as Camrose, 45 air miles distant from the studio. The innovation has proven popular.

Another broadcasting service is that of news coverage. Newscasts are given a prominent place in CKUA program schedules. Their up-to-the-minute service brings news from the wires of the Canadian Press. Facilities for reporting local news are provided. The listener can be assured accurate coverage of local, national and international events.

Freedom from commercial commitments gives CKUA programs a flexibility which allows the station to take greater advantage of visiting talent and topical broadcasts of all kinds. The station can and does exercise a substantial influence on the calibre of entertainment and service offered to the general public. * * *

DISTRICT "AG" SERVICE

Number of District Agriculturists serving Alberta is 34. These men bring expert advice to farmers in every district of the Province. * * *

BOOKS, BOOKS, BOOKS

In its twenty-two years of operation, the School Book Branch has distributed 6,400,000 copies for a total value of \$4,508,457.45. * * *

Midget FM Panel Transmitter Eliminates Noise and Static

Radio Station CKUA has only one set of studios and offices, but it broadcasts through two transmitters and from two radically different antennae. For the conventional AM broadcasting the transmitter and the towering steel masts of the antenna are located along the Calgary Trail, far away from the noises of the city. For the new FM system the transmitter is a compact panel not more than three feet wide, situated in the studio itself. The transmitter has an uncanny faculty of broadcasting nothing from beyond the soundproof walls of the studio. The FM antenna, likewise, is undisturbed by the roar of city traffic and has been erected on the building above the studios.

In the case of CKUA's AM antenna system, several miles of copper wire are buried in the ground around the base of the steel mast. These radiate at three degree intervals in more than

one hundred different directions, and if exposed, would resemble gigantic spider webs with the towers in the centre of each web. Without these radial wires much electrical energy would be dissipated, resulting in a reduction of signal strength and a consequent decrease in the range of the station. With them, this loss of energy is kept to an absolute minimum.

With the FM antenna, height is of major importance. CKUA has achieved this by erecting it on top of the Provincial Building above the studios. Closely resembling the mast of a ship, two "doughnuts" are arranged on a single steel pole, one about half way up, and the other near the top. These "doughnuts" have been tuned according to the frequency of the transmitter, and signals are sent out through them, clear and undistorted, from the studio microphones. * * *

Program Breaks Kept at Minimum

When you stop to think of it, there's plenty of opportunity for any modern radio station to break down. In the station there's the control panel with its amazing array of delicate instruments. There are the transmission lines which may be bringing a network program to the studios, and the lines connecting the studios with the transmitter. Finally there are the tubes in which every grid, every screen, every hair-like wire is vital to their efficient operation. Nothing must go wrong in any of these links.

Take, for example, the transmission systems bringing network broadcasts daily to CKUA. These come to the studio from CBC studios over Canadian Pacific or Canadian National telegraph lines. In this instance at least competition is forgotten; the shortest route carries the program regardless of which line is used. Resources are pooled without question to make network programs available to all. The enjoyment of the listener is the only consideration.

Occasionally a line breaks, or a tube must be replaced. If it is the former, trained linemen rush to the trouble spot, and even a work train may puff away with equipment to repair the break. Meanwhile technicians have re-routed the broadcast so that the program may be continued.

In the case of a studio break, skilled technicians must be able to identify its cause and take steps to repair it . . . but quickly.

The general public are not particularly interested in methods. Their one concern is the quality of the program and its uninterrupted reception. But if it happens that the casual voice of the announcer begins, "Due to circumstances beyond our control . . ." please be patient. Behind the scenes, a great deal of activity and skill is being brought into play on your behalf. * * *

Frozen food locker plants established here now number an even one hundred, having a total of 28,000 lockers for use by the public. * * *



"Within Our Borders" is a publication designed to acquaint the people of the Province with the administration and services of the Alberta Government.

It is believed the many and varied services of the Government will be effective in the degree they are known and used. Any material used is for immediate republication.

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